Version 2.0

Operating Instruction

HYDROMETTE BL

COMPACT S

EN

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0.1 Conformity Declaration

For conformity to electromagnetic compatibility: EC Directive 89/33/EEC in the version 93/31/EEC for the measuring instrument:

GANN HYDROMETTE BL COMPACT S

We hereby declare that the design and model of the above-named measuring instrument conforms to the above-named directive in the design introduced to the market by us. This declaration is invalid if unauthorised modifications are made to the instrument.

The following standards were consulted for electromagnetic compatibility purposes:

Interference immunity: EN 61326-1: 2006-05;
EN 61326-1: 2006-10; ESD.
EN 61000-4-2: 1995 +A1:1998+A2:2001

Electromagnetic fields: EN 61000-4-3: 2006-12

Emitted interference: EN 61326-1: 2006 – 05;
EN 61326 -1: 2006-10

Electromagnetic interference field strength: 30 MHz – 16 GHz

EN 55011: 1998 + A1: 1999 + A2: 2002

0.2 Publication Declaration

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GANN Mess- u. Regeltechnik GmbH, Gerlingen, 07 Nov. 2014

0.3 WEEE Directive 2002/96/EC Electrical and Electronic Equipment Act

The packaging, battery and instrument must be disposed of at a recycling centre in accordance with legal regulations.

The instrument was manufactured after 01.10.2009

0.4 Safety Instructions

This measuring instrument conforms to the EN 61326-1: 2006-05 standard and fulfils the requirements of applicable European and national directives. Appropriate declarations and documentation are located with the manufacturer. The user must read these operating instructions in order to guarantee problem-free instrument operation and operational safety. The measuring instrument may only be operated under the specified climatic conditions. These conditions can be found in Section 3.1 "Specifications". In addition, this measuring instrument may only be operated under the conditions and for the purpose it was designed for. The operational safety and functionality are no longer guaranteed if the instrument is modified or converted. Gann Mess- u. Regeltechnik GmbH assumes no liability for any ensuing damage. All risks are assumed solely by the user.

- The instrument may not be stored or operated in aggressive atmospheres or atmospheres containing solvents!

- **Static electricity** - At low wood humidities, below approx. 12% and low air humidity (especially in the winter months), high-voltage static electricity charges may build up, favoured by external influences (friction during material transport, high environmental insulation value), which may not only lead to strong fluctuations in the measured data or negative values, but also to the destruction of electrical components in the instrument. Even the instrument operator may — inadvertently — contribute to the build up of a static charge by the clothing worn. A considerable improvement can be achieved if the operator and the instrument are absolutely still during measuring, as well as by earthing (contact with conducting metal, water or heating pipes, etc.).

- Frozen wood cannot be measured.

- The notes and tables on allowable or common moisture conditions in practice and general definitions given in these instructions were taken from the technical literature. The manufacturer therefore cannot accept any liability for correctness. The conclusions drawn from the measurement results depend on each user's individual requirements and practical, professional empiricism.

- Because the measuring instrument adheres to the stricter emitted interference (EMC) Class B, it may be operated in residential and commercial environments.

- The measuring instrument and any accessories used may only be used for the purpose intended, as described in these instructions. The instrument and accessories should be kept away from children!

- Do not measure wood or other materials on conductive surfaces, such as metal, wet surfaces, etc.

Gann Mess- u. Regeltechnik GmbH accept no liability for damage caused by non-compliance with the operating instructions or by violation of a duty to care during transport, storage or operation of the instrument, even if this duty to care is not specifically discussed in the operating instructions.

CAUTION: There is a danger of injury from the electrode pins if the measuring instrument is carried without its protective cover or other protective packaging. There is also a danger of injury due to careless handling of the electrode pins during the measuring procedure.

1 Introduction

1.1 Description

The Hydromette BL Compact S is an electronic moisture meter for various types of wood and has a 3-line LCD display. The electrode pins are pressed into the respective medium and allow recording of the moisture content of wood combustibles.

1.2 Instrument Design and Key Assignments

Electrode pins

Display

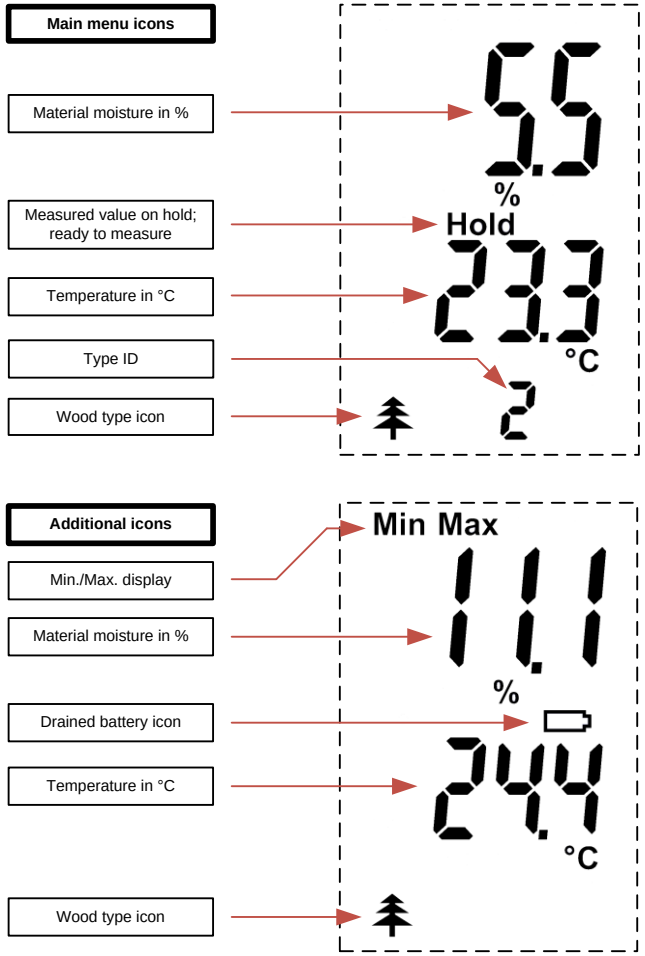
Up key

On/Off key

Measure key

Down key

1.3 Display Icons



2 Basic Functions

2.1 Switching the Instrument On

The instrument is switched on by pressing the "**On**" key .

Last measured value in %

"Hold" icon

Last measured instrument temperature in° C

Wood type symbol and code

Figure 2-1 Main menu

A new measurement can be started in this menu by pressing measuring key "**M**". Also see Section 2.2 "Measuring mode".

2.2 Display in Measuring Mode

Displayed measurement value in % of water content or in weight % / absolutely dry

"Hold" icon signals measurement readiness

Instrument temperature in° C

Wood type symbol and code

Figure 2-2 Measuring mode

A measuring process is started by pressing the "**M**" key.

2.3 Settings Menus

By repeatedly pressing the "**Up**" and "**Down**" keys the following menus can be selected in sequence (sequence using the "**Down**" key; the menus are accessed in the opposite direction using the "**Up**" key):

1. **Measuring menu** (main menu): The measuring process can be performed from here.
2. **Type selection:** The material type can be selected here.
3. **Maximum value:** The largest measured value is displayed.
4. **Minimum value:** The smallest measured value is displayed.

2.3.1 Measuring Menu (main menu)

The last measured value is shown together with the comment "**Hold**". The instrument temperature and the current type are also shown on the display.

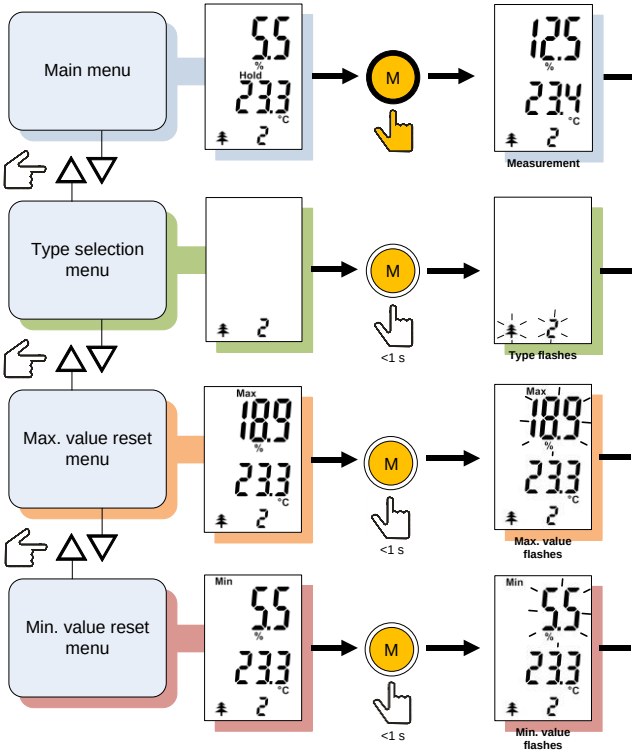
A new measurement can be started in this menu by pressing the "**M**" key.

The "**Hold**" icon disappears from the display during the measurement and the % sign flashes. If the measured value remains stable, the % sign stays on and the measured value is stored after releasing the "**M**" key. The "**Hold**" icon is displayed again.

If the new measured value is greater or smaller than the previous maximum or minimum, "**Max**" or "**Min**" flash on the display. Press the "**M**" key briefly to store the new value as the new minimum or maximum. A new measurement can be started without altering the previous minimum or maximum by pressing "**M**" *longer* if the value is not to be stored.

If a measurement is outside of the measuring range (< 10%, > 50%) a flashing value, which is additionally marked by "LO" or "HI", warns of this.

Illustrated quick-start guide



Key

On/Off key: Instrument deactivates after 30 sec. of inactivity

Press the measuring key for any length of time

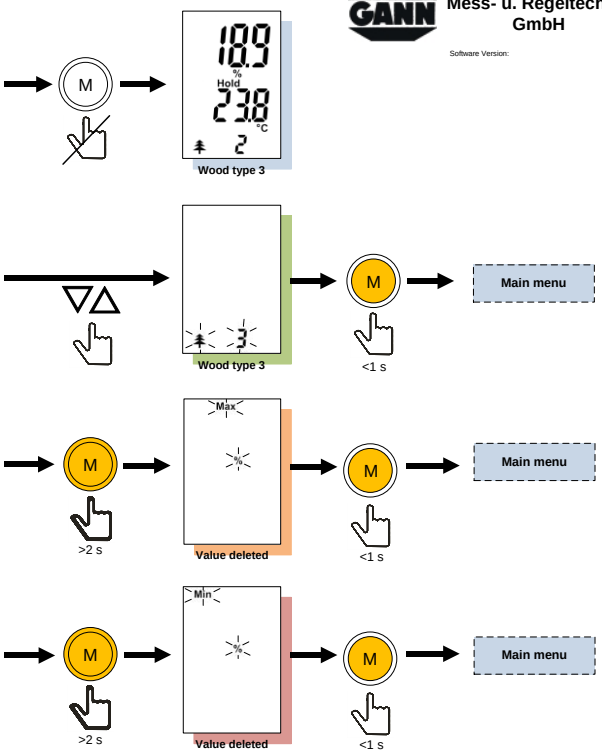
Hold the measuring key down for more than 2 seconds

Press the measuring key briefly

Illustrated quick-start guide

Mess- u. Regeltechnik GmbH

Software Version:

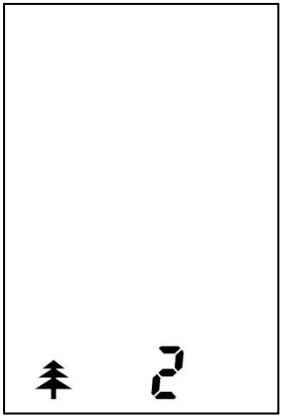


Key

Release the measuring key

Up or Down for menu selection

Press the Up or Down key



2.3.2 Setting the Wood Type:

The specified wood ID is displayed with the icon for wood moisture.

Wood type symbol and ID

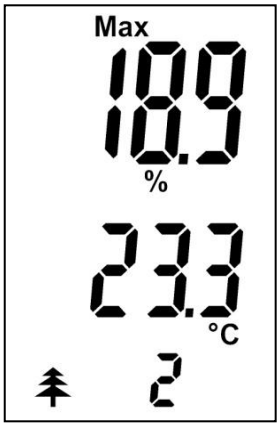
Figure 2-3 Wood type menu

Press the "**M**" key (measure key) *briefly* to change the type.

The type ID flashes and can be set using the "**Up**" and "**Down**" keys. Press the "**M**" key again *briefly* to save the change.

The type table can be found in the Annex.

2.3.3 Maximum Value



The largest measured moisture value of a series is displayed together with the display icon "Max."

Wood type symbol and ID

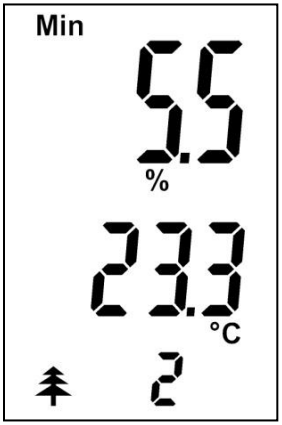
Figure 2-4 Maximum value

To delete a maximum value, the displayed value must be selected by *briefly* pressing the "**M**" key (measure key):

The value and the % sign are now flashing and the value can be deleted by pressing the "**M**" key *longer*. Once the value has been deleted, only the % sign flashes. By *briefly* pressing the "**M**" key once again the deletion is confirmed and the % sign disappears. The instrument returns to standby mode.

A new measurement can then be carried out using the "**M**" key.

2.3.4 Minimum Value



The smallest measured moisture value of a series is displayed together with the display icon "Min"

Wood type symbol and code

Figure 2-5 Minimum value

To delete a minimum value, the displayed value must be selected by *briefly* pressing the "**M**" key (measure key):

The value and the % sign are now flashing and the value can be deleted by pressing the "**M**" key *longer*. Once the value has been deleted, only the % sign flashes. By *briefly* pressing the "**M**" key once again, the deletion is confirmed and the % sign disappears. The instrument returns to standby mode.

A new measurement can then be carried out using the "**M**" key.

2.4 Additional Functions

2.4.1 Automatic Shut-down

If no key is pressed for approx. 30 seconds the instrument switches off automatically. The current data are retained and are displayed again after switching on.

2.4.2 Battery Monitoring

If the battery icon appears in the display, the battery is empty and must be replaced.

A list of suitable battery types can be found in the "Specifications" section.

2.4.3 Electrode Replacement

The knurled screws must be loosened to replace the electrodes. The tips can then be easily replaced.

Care must be taken that the knurled screws are always sufficiently tightened to prevent measuring errors and the area between the tips is kept clean.

3 Specifications

3.1 Technical Specifications

Display:	3-line display
Display resolution:	0.1%
Reaction time:	< 2 s
Storage conditions:	+ 5° to + 40° C
	- 10° to + 60° C (short-term)
Operating conditions:	0° to + 50° C
	- 10° to + 60° C (short-term)
Power supply:	9 V battery
Usable types:	Type 6LR61 or Type 6F22
Dimensions:	200 x 50 x 30 (L x B x H) mm
Weight:	approx. 170 g

3.2 Intolerable Ambient Conditions:

- Condensation, continuously high humidity (> 85%) and wet
- Continuous dust exposure and flammable gases, vapours or solvents
- Continuously high ambient temperatures (> + 50° C)
- Continuously low ambient temperatures (< 0° C)

3.3 Measuring Range

Wood moisture:

10% to 50% (in weight percent / absolutely dry)

10% to 25% (in percent of water content)

2-stage wood type correction

4 Notes on Use

4.1 General Notes

The Hydromette BL Compact S measures wood moisture by means of resistance measurement. Entering the appropriate code allows evaluation by weight percentage and percent of water content.

4.1.1 Definition: Wood moisture (u)

The term “wood moisture” refers to the wood’s water content. Normally, wood moisture (according to DIN 52183) is expressed as a percentage related to absolute dry content (or dry weight or percentage of atro). When wood moisture is being determined by means of a Darr test, the testing sample must be dried at approximately 103°C to the equilibrium constant. Wood moisture (u) is calculated by the following formula:

$$\frac{\text{Weight reduction} \cdot 100}{\text{Dry weight}} = \text{Wood moist. content (u) in weight \% (atro)}$$

4.1.2 Definition: Water content (w)

This term is partially used for indicating the moisture of wood combustibles and biomasses. It expresses the water mass in % (w) in relation to the total mass, the so-called “wet weight”. Water content (w) is calculated by the following formula:

$$\frac{\text{Weight reduction} \cdot 100}{\text{Wet weight}} = \text{Water content (w)in percent}$$

4.1.3 Calorific Value

To attain a good heating value or calorific value with the lowest possible emissions, the aim should be wood moisture (u) of under 20% for single ovens without automatic feed. This corresponds to a water content (w) of less than 17%.

After a year of open-air storage, wood moisture (u) values of about 40% to 50% are attained, and after two years of storage about 20% to 30%. This depends on the initial moisture, the type of wood and the storage conditions.

4.1.4 Conversion Table

Conversion of wood moisture (u) to water content (w)

Wood moisture (u) %	100	50	30	25	20	15	10
Water content (w) %	50	33	23	20	17	13	9

4.2 Notes on Measuring Wood Moisture

Figure 4-1 Measuring perpendicular to the grain

For the best-quality measurement results, before measurement the log should be split again and measured at the fresh inner face. The electrode pins must be pressed into the wood across the grain. Care must be taken that the knurled screws are always sufficiently tightened to prevent measuring errors and that the area between the tip slots is kept clean.

It is not possible to measure frozen wood.

5 Annex

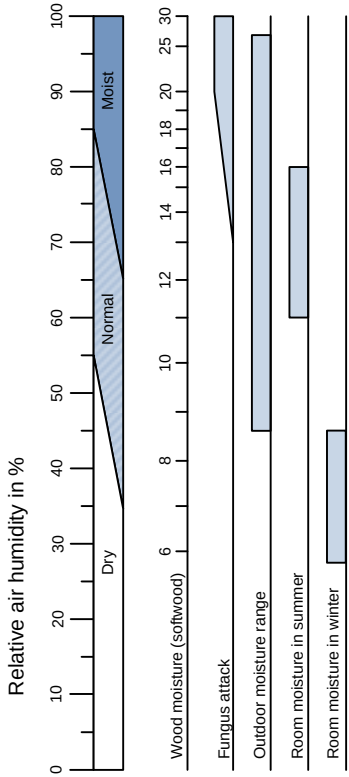
5.1 Setting the Type

		Evaluation is done in:
2	Hardwood	wood moisture in weight % / atro
3	Softwood	wood moisture in weight % / atro
32	Hardwood	wood moisture in % of water content
33	Softwood	wood moisture in % of water content

5.2 Wood Types Table for the Compact S

Wood type	Code for Measurement in weight %	Code for Measurement in water content %
Maple	**3**	**33**
Birch	**3**	**33**
Pear tree	**2**	**32**
Beech, white, red	**2**	**32**
Douglas fir	**3**	**33**
Yew	**3**	**33**
Oak	**3**	**33**
Oak red, white	**2**	**32**
Alder	**3**	**33**
Ash	**3**	**33**
Spruce	**3**	**33**
Pine	**3**	**33**
Chestnut, Spanish, Horse	**3**	**33**
Cherry	**3**	**33**
Larch	**3**	**33**
Linden	**2**	**32**
Walnut	**3**	**33**
Poplar	**3**	**33**
Fir	**3**	**33**
English elm	**3**	**33**

5.3 Comparison Graph of Humidity - Material Moisture Content



Notes:

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